

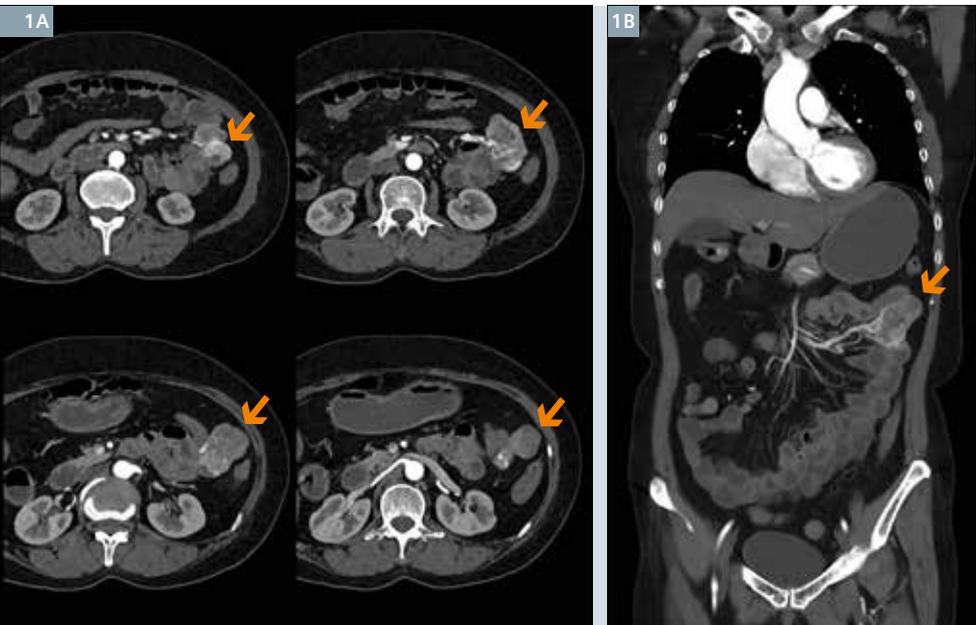
## Case 12

# Stromal Tumor Causing Intestinal Bleeding – a Diagnostic Workup using CT

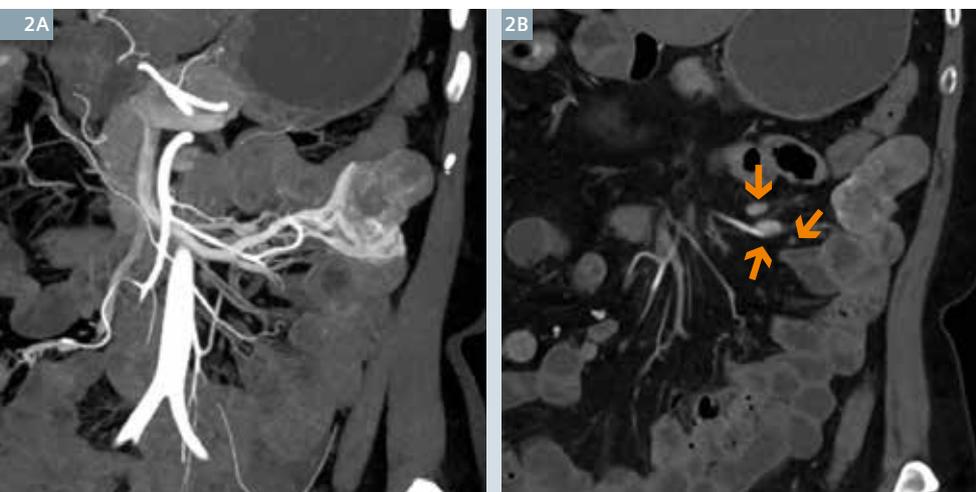
By Mei Jiang, MD; Shupei Xue; Xi Zhao, MD,\* and Prof. Bixian Shen, MD

Department of Radiology, Shenzhen Nanshan Hospital, Guangdong, P.R. China

\*Siemens Healthineers, P.R. China



**1** Axial (Fig. 1A) and coronal (Fig. 1B) images acquired from arterial phase show an exophytic heterogeneous enhancing mass (arrows) arising from the jejunal loops, causing a partial obstruction of the jejunum.



**2** A MIP (Fig. 2A) image shows a hyper-perfused lesion with a strong arterial feeder derived from the segmental artery of the SMA and drained by the SMV. A coronal MPR image (Fig. 2B) reveals three enhanced lymph nodes in the adjacent omentum (arrows).

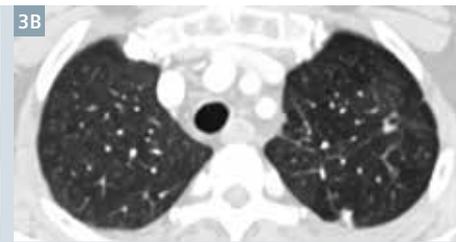
## History

A 57-year-old female patient, complaining of three episodes of sudden chest distress with sweating and one onset of short syncope within the past ten hours, was admitted for clarification. Cardiac workups excluded a cardiac event. Due to the fact that the patient had tarry stool in the past three days along with recent weight loss, chronic gastricism and anemia, gastrointestinal track bleeding was suspected. A colonoscopy performed was unsuspecting and an added upper endoscopy was also unable to locate the site of bleeding. An abdominal CT examination was then requested for further investigation.

## Diagnosis

Double-phase contrast CT images showed an exophytic heterogeneous enhancing mass, measuring 5 × 3.5 cm in size, arising from the jejunal loops. The lesion was hyper-perfused with a strong arterial feeder derived from the segmental artery of the superior mesenteric artery (SMA) and drained by the superior mesenteric vein (SMV). The jejunum was partially obstructed by this mass. Additionally, local lymph nodes (maximum 1.3 × 0.6 cm in size) were present in the adjacent omentum and were rated as suspicious. This was due to their contrast enhancement and their increased number when compared to other sections of the lymphatic drainage within the omentum. To conclude, a stromal tumor was suspected along with a local lymph node involvement.

In further staging, two small lesions in the left-upper lobe of the left lung were revealed.



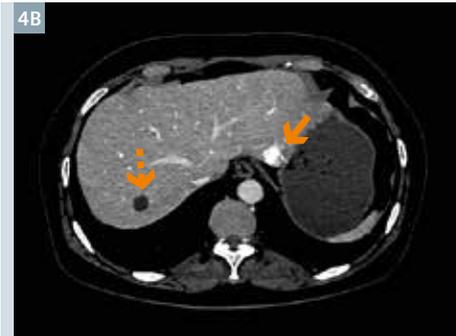
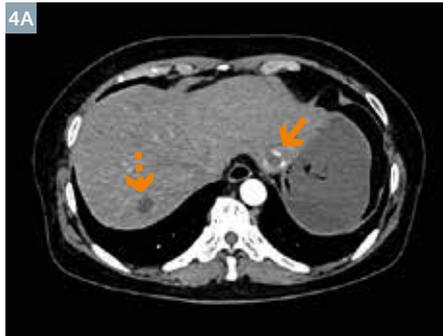
**3** An axial MIP (Fig. 3A) and a MPR (Fig. 3B) image show two small lesions in the left-upper lobe of the left lung which were rated as scar tissue due to their configuration and missing contrast media enhancement.

The configuration of the lesions was rated non-tumorous. Furthermore, three small lesions were seen in the liver – the one in the left lobe was characterized as a hemangioma, another one in the right lobe was rated as a cyst and the smallest one, in the periphery of the right lobe, was non-conclusive after two scans and required further investigation. No evidence of bone metastases was seen.

The patient underwent abdominal surgery and pathology confirmed an intestinal stromal tumor.

### Comments

A confident CT diagnosis and staging in oncology require not only excellent image quality but also fast scan speed. Since double phases or multiple phases contrast scans over a longer scan range are often required for differential diagnosis and staging, such as in this case, exact timing of each phase can only be achieved with fast scan speed. This also helps to reduce artifacts caused by bowel movement. ■



**4** Axial images acquired from arterial (Figs. 4A and 4C) and venous (Figs. 4B and 4D) phases (slice thickness 1 mm) reveal three small lesions in the liver – the one in the left lobe (arrow) is characterized as a hemangioma, another one in the right lobe (dashed arrow) is rated as a cyst and the smallest one in the periphery of the right lobe (arrowhead) is non-conclusive with the two phase scan exam performed and requires further investigation.

## Examination Protocol

Scanner	SOMATOM Definition Edge		
Scan area	Chest abdomen pelvis*	Rotation time	0.5 s
Scan length	594 mm	Pitch	1.2
Scan direction	Cranio-caudal	Slice collimation	128 x 0.6 mm
Scan time	6.5 s	Slice width	1 mm
Tube voltage	100 kV	Reconstruction increment	0.7 mm
Tube current	204 mAs	Reconstruction kernel	I31s SAFIRE 3
Dose modulation	CARE Dose4D	<b>Contrast</b>	
CTDI <sub>vol</sub>	8.07 mGy	Volume	80 mL + saline
DLP	506 mGy cm	Flow rate	4.0 mL/s
Effective dose	7.6 mSv	Start delay	Bolus triggering in the ascending aorta with a threshold of 100 HU and an additional delay of 7 s

\*For arterial phase. Venous phase applied the same scan protocol for abdomen and pelvis. The patient was asked to drink water before the examination. No bowel relaxants were applied.

The outcomes by Siemens' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.